severed or jammed with calls. Citing an example of "communications gridlock" in a *Petition for Rule Making* regarding cellular priority access for public safety; National Communications Systems points out that immediately following the Oklahoma City bombing incident, "local response teams were having difficulty communicating" when using cellular telephones.[23]

56. Another life threatening example of the need of PMRS users to have immediate access to open communications channels occurred in July 1995, when a Conrail police officer observed a trailer hanging over the side of a flatcar on a passing train. The officer was able to contact the train engineer by private radio in time to have the train stopped before reaching a tunnel. But for the ability to communicate this information quickly by radio, the trailer would have struck the wall of the tunnel upon entry, causing a major derailment. Even in less critical situations, the ability of users to prioritize calls is an integral part of their day-to-day operations. CMRS services, on the other hand, are not capable of prioritizing one customer's call over all others.

B. Control

57. Having absolute control over their communications network is essential for many PMRS users. This includes having the ability to monitor and coordinate day-to-day operations, as well as respond to emergency situations. As stated in the *PMRS Land Mobile Communications Requirements of Passenger and Freight Air Carriers at Airports* report, airline companies are significantly impacted by radio communications and equipment failures.[24] These failures present

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[23] In the Matter of Cellular Priority Access for National Security and Emergency Preparedness Telecommunications, *Petition for Rule Making*, WT Docket No. 96-86, filed by National Communications System, October 19, 1995.

[24] *See PMRS Land Mobile Communications Requirements of Passenger and Freight Air Carriers and Airports*, report of the ARINC Aeronautical Frequency Committee, (rel. September 30, 1996)(*ARINC Report*).

an air carrier with the risk of major disruptions to aircraft processing and possible outages if not remedied immediately:

> Two-way radio communication provides air carriers the ability to exercise precise tactical control over several thousand personnel who are necessary for the operation of a major air terminal. This control requires very intense and in-depth communication transactions which must be accomplished quickly and reliably . . . Two-way radio systems at major airports are complex systems which require many channel assignments in order to provide needed capacity and some degree of isolation and division of function.[25]

As a consequence, most airlines staff their own radio maintenance facilities at major airports so that they can exert full control over maintenance and restore activities. This is a recurring cost commitment on their part, but one which is fully justified by the economic risk inherent in a radio system outage.

58. A PMRS user's control over its network could also be severely inhibited under a CMRS service contract should the carrier change its network, merge with or acquire another company, or cease doing business altogether. Continual increases in access charges or usage rates could also lessen a user's ability to control financial expenditures for its communications network.

C. Capacity

59. PMRS users require flexibility in their communications systems to handle the need for increased capacity during peak periods of operations. Requirements for increased capacity vary dramatically from one type of PMRS user to another. Some PMRS users require additional capacity only at certain times of the day, week or month, while others have several peak operating periods throughout the day. In a study of airline carrier usage, several five-channel systems were observed to have peak sustained channel request rates as high as 1,000 dispatches per hour over a

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[25] *Id.* at 37.

15-30 minute period against a longer-term background rate of approximately 600 dispatches per hour over several hours.[26] While air carriers make the economic commitment to pay extra for systems that accommodate these peak periods, common carrier operators would be unlikely to make such an investment.

60. The extent of increased capacity during peak periods also varies from user to user. The International Taxicab and Livery Association (ITLA) for instance, found in a recent study that over 5,600 one-way transmissions are executed during an average peak busy hour. In fact, many PMRS systems are engineered to handle more capacity than CMRS systems. This capacity is necessary for PMRS users to coordinate their activities in responding to emergencies or natural disasters. During these emergencies, PMRS users perform an invaluable public service and must be guaranteed sufficient capacity to effectively deal with these life-threatening situations. PMRS users that are in control of their own systems can administer flexibility and accommodate peak operating periods by accessing additional channels that are shared with users whose activities decrease during this same period.[27] CMRS service providers, in contrast, normally design their networks to accommodate only the average capacity requirements for their total customer base and are unlikely to invest in ways to meet unique requirements for individual users such as these.

D. Reliability

61. Many Federal Government, state and industry agencies mandate safety compliance regulations for PMRS users that require highly reliable communication systems for day-to-day

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[26] *Id.* at 33.

[27] Comments of the International Taxicab and Livery Association, prepared by BIA Consulting, (submitted in response to *Request for Comment* for *Wye Report*), May 10, 1996, pg.5 (*ITLA Comments*).

operations as well as for emergency situations or disaster recovery plans. A number of the requirements were detailed in the written testimony of several railroad, utility, and petroleum industry associations to the Senate Commerce Committee.[28] Under the Pipeline Safety Act, for example, emergency response plans for gas pipelines must include reliable communications with fire, police and other public safety officials.[29] The North American Electric Reliability Council (NERC) standards also require reliable and secure telecommunications networks and the use of exclusive communications channels between the systems and control centers of adjacent electric systems.[30]

62. The Federal Emergency Management Agency (FEMA) requires reliable primary and backup means of communications between a nuclear facility and the utility's near-site emergency operations facilities, state and local emergency operations centers, radiological monitoring teams and the Nuclear Regulatory Commission.[31] Reliability of these communications systems must be demonstrated under emergency conditions that would overwhelm public or third party systems. Reliability means having continuous communications throughout an area of operation, whether that area covers all levels of a plant facility or connects multiple geographic regions required for users such as railroad and utility companies. CMRS services cannot provide reliable coverage for many PMRS users due to coverage limitations. For example, in the San Francisco Bay area, the

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[28] *See* Written Statement on Behalf of the American Gas Association, *et al.* Before the Senate Commerce Committee, April 18, 1996.

[29] *Id.*

[30] *Id.*

[31] *Id.*

California State Automobile Association has its emergency road service dispatcher linked directly to the local emergency dispatch, so that police officials can dispatch emergency road services without delay. Cellular use during a serious freeway accident can spike upward so significantly that this cooperative dispatch response by police officials and the automobile emergency service would be impossible if the auto club were forced to employ CMRS services.

E. Equipment Requirements

63. Many PMRS users who need to communicate within environments that could become hazardous are required by law to use only equipment that meets certain safety standards. Petro-chemical users, for example, are required to operate with only Factory Mutual Approved intrinsically safe radios (which are designed not to spark when activated) for communications in explosive environments such as oil refineries. Currently, CMRS service providers do not offer intrinsically safe equipment and, therefore, cannot be used in these environments where communications are vital. The Rail Safety Enforcement and Review Act of 1992 requires the installation of two-way end-of-train devices, allowing coordination of movement between the locomotive and the rear of the train.[32] The Federal Railroad Safety Act of 1970, as amended, requires the Secretary of Transportation to prescribe regulations and issue orders regarding rail safety, and Congress has mandated to the Secretary of Transportation to require the railroad industry to deploy two-way radio links for the initiation of emergency braking from the rear of a train.[33]

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[32] *Id.*

[33] *See* 49 U.S.C. § 20141(b).

F. Geographic Requirements

64. PMRS users require communications in even the most remote areas of the country where CMRS networks cannot provide coverage. The forestry industry, for example cannot be served by cellular or PCS devices as propagation characteristics make penetration for those technologies in dense wooded areas difficult, if not impossible. Other rural or remote areas are not serviced by CMRS systems as carriers tend to build out in densely populated areas where they can maximize their investment returns. While CMRS service providers are expanding their networks to some smaller metropolitan areas, many rural areas may never have access to these services. This eliminates the possibility for some PMRS users such as railroads, to deploy communications across wide geographic areas that encompass both major metro and rural areas. In a recent study conducted by Motorola, more than half of the non-public safety, PMRS system users surveyed stated that existing cellular service provided insufficient coverage to meet their needs.[34] Most of these respondents cited cellular's insufficient coverage in rural areas while the remainder expressed concern about in-building penetration or regional service needs.[35]

65. Even in areas where CMRS services are available, a user may be required to contract with multiple carriers in order to provide adequate coverage for its area of operation. A large public utility for instance, may provide service over several states. In order for that utility to have seamless coverage across its service area, it would need to negotiate service contracts with multiple CMRS providers. Each provider may employ different equipment, adhere to different

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[34] Motorola White Paper: *Characteristics of PMRS Land Mobile Radio* (submitted in response to *Request for Comment* for *Wye Report*), May 13, 1996.

[35] *Id.*

standards, or offer different services, making seamless coverage impossible. This poses a particular problem for PMRS licensees such as railroads, whose communications equipment must be interoperable along railway systems that may cross the entire country. In addition, variations in service charges and plans, contract terms and other expenses would make forecasting and controlling finances virtually unmanageable.

66. American business and industry vitally depend on PMRS systems. CMRS carriers are simply not able to satisfy the many specialized requirements encountered in the business marketplace. Companies like Toyota, Weyerhaeuser, Coors, Boeing and Corning, among others, have concluded that CMRS systems will not satisfy their needs. In addition, critical infrastructure industries such as pipelines, utilities, and the railroads cannot entrust their crucial public safety communications needs to CMRS providers which may not provide the reliability required in life-threatening emergency situations. Carriers will not provide assurances of reliable coverage within plant facilities, or over wilderness timberlands; will not provide assurances of access in the event of disasters; and will not guarantee system reliability compliant with military contract specifications. In short, business and industry will continue to rely upon PMRS communication systems and require continued spectrum allocations to accommodate their needs.

V. Future Quantitative Spectrum Requirements and Options

67. The spectrum requirements analysis conducted by the LMCC reveals that future additional spectrum needs of the PMRS community are as follows: 15 MHz by the year 2000, 44 MHz by 2004, and 125 MHz by 2010 (44 MHz is inclusive of the 15 MHz, and the 125 MHz is

inclusive of the 44 MHz).[36] However, there is, not unexpectedly, a dearth of spectrum that might be used to satisfy the urgent immediate needs of the non-public safety PMRS, as well as the year 2010 needs. Therefore, the LMCC recommends the following:

- Immediate needs be satisfied by a reallocation of 420-430 MHz, paired with 440-450 MHz, from Federal use to PMRS;
- Immediate/mid-term needs be satisfied by FCC allocation of 1390-1400, 1427-1432, and 1670-1675 MHz to PMRS, pursuant to its reallocation to the private sector from the government;
- Reallocate 85 MHz of the aeronautical band, 960-1215 MHz, to the PMRS by the year 2010 to satisfy longer term needs, shared with the developing DOD JTIDS/MIDS service.[37]

A. Recommendation Comments

68. These recommendations are based on the LMCC's best assessment of the threshold characteristics of spectrum appropriate for allocation to the PMRS industry. First, this analysis was limited to the bands below 2 GHz. Because of the substantial increase in propagation loss, reduced maximum safe transmitter power levels, and increased difficulty in creating small, low cost products, spectrum at higher frequencies is generally unusable for PMRS use. Second, bands of spectrum that are reasonably close to existing PMRS allocations are preferred. An allocation of spectrum located too far from bands where existing equipment operates would require a

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[36] The details of this analysis, and a description of the methodology employed are included in Appendices C, D, and E. In order to provide a common frame of reference, the methodology employed in the LMCC's analysis is substantively similar to that employed in the PSWAC Report.

[37] In important association, it is also recommended that an additional 70 MHz of this band be reallocated to PMRS public safety services, in order to satisfy their projected year 2010 needs. The remaining 100 MHz would be generally devoted to on-going aeronautical needs, such as perhaps air-to-ground data links, remaining use of collision avoidance systems (at 1030 and 1090 MHz) and possible GPS enhancements.

lengthy and more costly equipment development process to be completed before such spectrum could be put to use. Last, the LMCC selected bands of Federal Government spectrum that were likely to become available as a result of evolutionary changes in Federal usage, such as military down-sizing and technological shifts. Because partial continued use of such Federal Government spectrum may remain vital, the LMCC embraces the recommendations of the SPAC report and believes that shared spectrum use may be a viable alternative to outright reallocation in some cases. Accordingly, the bands discussed in detail below, are representative of this criteria. However, these are not the only bands that meet this criteria. Additional bands may be appropriate for allocation to the PMRS community.

i. 420-450 MHz

69. As previously noted, PMRS already uses 420-430 MHz in three Canadian border cities. History shows that a substantial number of PMRS systems have been implemented in these cities, with no interference problems, either with Canadian systems across the border or with Federal Government systems in the U.S.

70. A reduction in military use of this band is foreseen and it could be that most PMRS services could co-exist in most significant geographical areas of the U.S., with perhaps PAVE PAWS (Precision Acquisition Vehicle Entry Phased Array Warning System) geographical restrictions in parts of California, Georgia, Massachusetts and Texas.

71. NOAA is experimenting with Wind Profiler use at 449 MHz. Ideally, this should be discouraged or at least minimized, in favor of higher frequency operation (e.g. 915 MHz), if reallocation to PMRS is considered. The band is generally popular with radio amateurs, currently on a secondary basis, with repeater use in 440-450 MHz and satellite links and amateur television

in 430-440 MHz.

72. Because of its closeness to the 450-512 MHz "work-horse" band, existing equipment may be employed for the use of this spectrum. A key reason for pairing the two sub-bands, with a 20 MHz spacing, is to provide for efficient duplex/repeater operations on the fixed ends of systems. If 430-440 MHz were reallocated instead, the spacing would be reduced to 5 MHz, which, though workable (450-470 operations use 5 MHz spacings), increases the difficulties, costs and resultant potential interference problems.

73. It is recognized that these sub-bands are used on a secondary basis by the radio amateur community, as is 430-440 MHz. However, the I MCC believes that the 430-440 MHz sub-band is more important to the amateurs for use in emerging technologies such as links with spacecraft and amateur television applications. Amateur applications in the 420-430/440-450 MHz should remain secondary to PMRS. Furthermore, to the extent that new PMRS advanced services are implemented here, equipment availability and technology would benefit amateurs pursuing such applications as compressed video television in the 430-440 MHz band. Though the most urgent need for PMRS is the more traditional voice and low speed data applications, ultimate band structuring might include a portion dedicated to these advanced services.

ii. 1390-1400/1427-1432/1670-1675 MHz

74. This net 20 MHz of spectrum is targeted for transfer from the Federal to the non-government sector in 1999. However, restrictions on use will remain for some time. Federal operations in the 1390-1400 MHz band will receive protection at 17 sites for 14 years; 1427-1432 MHz will be protected at 14 sites for 9 years; 1670-1675 MHz will be protected at two sites (Wallops Island, VA, and Fairbanks, AK) forever. Many of these protected sites are in key urban

areas such as the east coast and would substantially limit any potential PMRS deployments in those areas.

75. Though this band is not heavily encumbered, it does have significant shortcomings that prevent its immediate reallocation for PMRS users. First there is the issue of restricted availability in many major metropolitan areas. In some cases the restriction may be based more on interference-to-PMRS than the reverse. This may, for instance, be the case for 1390-1400 MHz, where the primary government installations are radar systems. It may be possible to negotiate somewhat smaller restriction areas than are now defined, or otherwise establish PMRS/Federal coordination processes that attempt to minimize these impacts. It may also be possible for prospective PMRS licensees to utilize more advanced technologies to mitigate interference received from government installations during this mid-term transition period.

76. In addition, this band is inherently more costly to implement PMRS systems in, as compared to 450-900 MHz, due to its significantly higher frequency. It has been previously demonstrated that a cost increase of approximately 17:1 would be incurred at 2.3 GHz and, though not currently calculated, system costs for implementation in this band could easily be increased by 4-10 times. Future PCS technology developments in the 1850-1990 MHz band will have some degree of benefit here to reduce costs, but most PMRS systems will not be able to take advantage of very small cell approaches such as will be implemented in PCS, thereby minimizing technology spill-over advantages.

77. Finally, there is currently no PMRS equipment available in this band. Manufacturers will, in most cases, be required to develop entirely new equipment to serve this band. Further, it is not clear what the best structuring of the three sub-bands might be. For instance, splitting 1390-1400

MHz into two paired segments results in an almost impossibly tight 0.36% spacing. The 1390-1400 MHz band will have to be paired with 1427-1432 MHz (2.4% spacing) for half the need, and with 1670-1675 MHz (9% spacing) for the other half. This additional complexity will further negatively impact manufacturer's ability to respond to potential licensee needs.

78. On a closing note for this band, two additional possibilities present themselves. First, the Federal Government, in negotiation with PMRS representatives, might find that some additional nearby spectrum, not currently identified, might be transferred in order to expand the potential utility of this band. Such transfer might, if necessary, envision shared PMRS and Federal use, with associated restrictions but also associated benefits to both parties. It is recommended that such discussions ensue. Also, recognizing that amateur radio service will see a net constriction by the recommended reallocation of 420-430/440-450 MHz, some of this spectrum might be reallocated to amateur service to offset the constriction. This would of course reduce the amount of spectrum reallocated to PMRS but might be of value to speed up net availability of the lower band. For example, 1390-1395/1427-1432 MHz might be allocated to amateur service with 1395-1400/1670-1675 MHz going to PMRS.

iii. 960-1215 MHz

79. The 960-1215 MHz band is allocated to Federal Government aeronautical radio navigation services (Tactical Air Navigation ("TACAN") and Distance Measuring Equipment ("DME")), and is used by both commercial and military aircraft.

80. This large amount of spectrum is structured into 1 MHz channels, with pulse ranging used for determining distance from aircraft to transponders. Aircraft interrogate transponders by transmitting pulse pairs at a given frequency. Ground transponders then respond with similar

pulses on a different frequency. Aircraft determine range by measuring the time delay between interrogation and response. This overall concept is prone to many sources of error and requires care in assigning frequencies to various ground transponders to minimize co-channel and adjacent channel interferences. This distance measuring system has been in place for decades and, when initiated, did not envision the technological advances in Global Navigation Satellite Systems ("GNSS"), as represented today by the global positioning satellites ("GPS"). As a result, the initial planning for the transition from this system to GPS has already begun, as evidenced by the following quotes from the study "Aeronautical Spectrum Planning for 1997-2010":

> Section 3.2.7: Aviation navigation is currently migrating from ground-based navigation systems to satellite-based navigation systems. .
>
> Section 3.2.7.1: GPS is used extensively worldwide by the DOD and the civilian community and it will be the primary radio navigation system for the DOD, the civil community and others well into the next century [38]

81. It is clear that there is and will continue to be a strong, worldwide movement away from TACAN/DME system use and to GNSS for all navigation purposes, including en route, initial approach and even final approach requirements. It is also noted that the DOD has developed an integrated communications, navigation and identification ("ICNI") capability using spread spectrum technology in the 960-1215 MHz band, known as JTIDS/MIDS, which is being integrated into US military and NATO platforms. This new service is currently implemented on a non-interference to TACAN/DME basis, with coordination by FAA and NTIA and, being spread-spectrum, is inherently compatible with the existing services. Consequently, nearly all of this large band that is currently assigned to TACAN/MDE should become available over the next 10 years.

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[38] Document RTCA/DO-237 (released January 27, 1997).

82. It is recognized that the aeronautical navigation services in this band are of considerable importance. On the other hand, it is clear that these services will shift to the new GNSS operations in the not-too-distant future and that this spectrum offers the last chance for PMRS to access spectrum that is both sufficient in scope and low enough in frequency to satisfy foreseeable future needs, including the perceived explosion in demand for advanced, wide bandwidth applications.

83. Based upon a year 2010 non-public safety PMRS total need of 125 MHz, and assuming 35-44 MHz of that need is satisfied via other near to mid-term allocations, 85 MHz of additional spectrum should be reallocated from this band by 2010. In addition, it is recommended that another 70 MHz be reallocated to the public safety PMRS to satisfy their PSWAC report 2010 needs.

84. Over and above the quantitative considerations, this places both non-public safety and public safety services in the same band, where economies of scale and other technology leveraging can occur to the mutual benefit of both. Part of the 85 MHz reallocation would obviously be used to satisfy the existing substantial shortage of spectrum for airline terrestrial land mobile applications in and around airports. These terrestrial airport applications would also benefit greatly from the wide bandwidth advanced services that would be enabled and brought to market in this band, including imaging and real time video transmissions used in the complex logistics of today's airlines and airports.

85. Since it is known that the DOD is investing considerable sums of money to develop their JTIDS/MIDS communications system to operate in this same band, discussions should be held between PMRS and NTIA to determine the best going-forward plan that allows optimization of

both reallocation objectives for 2010. This might even include coordinated efforts at system and product design, such as to benefit the DOD through commercial technology leverage, while at the same time benefiting the PMRS from military technology advancements such as spread-spectrum, or over-the-air reprogramable equipment.

86. The DME channelizations of 1 MHz bandwidth interrogation channel always associated with a specific other 1 MHz bandwidth transponder response frequency, which is always spaced 63 MHz away allows for a transition program of gradual nature. This basically requires a plan wherein the channels targeted for relocation would be terminated from aeronautical use over a period of time. By reducing the density of navigation transponders, rather than immediately reassigning DME channels, this transition could begin as early as 2003, with transition completion targeted for 2010.

VI. Spectrum Management

A. Sharing of Federal Government Spectrum

87. In keeping with the directive of the 1997 Budget Act Conference Report, the SPAC Report, and the findings of this petition, the FCC and the NTIA should promote the sharing of government spectrum with PMRS licensees by establishing engineering criteria and a streamlined administrative process for the sharing of government spectrum by PMRS users.

88. The SPAC report of the NTIA notes that Federal agencies face risks of interference problems, as well as hundreds of millions of dollars in costs, from future transfers of government spectrum allocations to the PMRS sector. Efforts to require the deployment of spectrally efficient radio systems and to reallocate Federal spectrum for PMRS sector use will cost more than $460 million. The report notes that permitting PMRS systems and Federal telecommunications services

to share frequency bands could ease these problems. Because of an "ingrained symmetry" between these types of entities, it is likely that the PMRS and Federal Government users would be able to work out mutually compatible methods and rules of sharing. Interference problems and relocation costs would therefore be minimized.

89. In order to avoid unnecessary bureaucracy and to permit the development of service rules in a timely manner, LMCC urges the FCC to establish streamlined licensing rules for the sharing of Federal spectrum. LMCC recognizes that it will need to work closely with NTIA to identify spectrum bands and establish interference criteria. However, the FCC must take action to ensure that spectrum identified for sharing is expeditiously made available for licensing, and applications are processed in a timely manner.

90. The FCC must also implement an accelerated administrative process so that, once appropriate Federal bands have been identified, PMRS licensees can gain access to these bands in an expedited manner. Clear, streamlined procedures must be established that allow the sharing agreements reached between the PMRS users and the NTIA to be implemented.

91. LMCC recommends that the FCC follow the example set in WT Docket No. 97-82, the proceeding in which the FCC standardized its competitive bidding processes.[39] In this proceeding, the FCC established its intention to apply certain basic rules to all subsequent proceedings involving applications subject to competitive bidding. The FCC still applies its rules on a case-by-case basis, but the basic rules themselves and the general guidelines pertaining to their application are already established, thereby eliminating the need for a prolonged debate over

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[39] *See* Amendment of Part 1 of the Commission's Rules -- Competitive Bidding Procedures, *Third Report and Order* (FCC 97-413), WT Docket 97-82 (rel. December 31, 1997).

these rules in each proceeding. The same framework could apply to proceedings involving shared Federal-PMRS spectrum. The FCC could establish its intention to apply certain basic rules (site-by-site licensing, coordination rules, etc.) to all such proceedings, while retaining the right to tailor these rules to particular bands of spectrum.

B. Technical Issues to Be Addressed in *Notice of Proposed Rule Making*

92. LMCC recognizes that there are other technical issues that must be addressed in a *Notice of Proposed Rule Making* on this issue, including:

- **Construction requirements.** Reasonable requirements mandating that PMRS systems must be constructed within an established period of time will be necessary to prevent spectrum warehousing and to ensure that PMRS spectrum is used efficiently.

- **Interference standards.** Sound spectrum management dictates that interference standards must be established to prevent interference among PMRS users.

- **Coordination standards.** As has been demonstrated in the PMRS bands below 512 MHz, the PMRS community and PMRS frequency coordinators must work together to establish coordination standards.

- **Efficiency-based licensing criteria.** The FCC should examine whether there are efficiency-based licensing mechanisms, including loading or usage requirements, which should be implemented to ensure that this spectrum is used efficiently.

C. The FCC's Licensing Rules Should Be Designed to Meet the Varied Needs of PMRS Users

93. The FCC must establish licensing rules that acknowledge the diversity of communications needs and applications of PMRS licensees. After all, it is the unique operating characteristics and the diverse communications applications required that separate PMRS users

from other users. Therefore, LMCC urges the FCC to provide for flexibility in the use of spectrum by PMRS licensees.

94. In particular, LMCC urges the FCC to provide geographic flexibility by licensing PMRS systems on a site-by-site basis. As explained above, predetermined, cookie-cutter geographic areas cannot meet the unique needs of PMRS users. Within the PMRS user community, there is a tremendous variation in the types and sizes of the communications systems needed. For example, industrial users may require the deployment of systems to cover several plants located on one campus. Utilities may require systems covering entire cities or states. Pipelines and railroads may require larger "ribbon" systems that cross state lines but cover no entire states. Site-by-site licensing is the only way to meet the requirements of all these entities.

95. The LMCC also recommends that the FCC avoid adopting unnecessarily rigid rules regarding the types of communications services that can be provided. PMRS licensees should be free to provide a variety of PMRS mobile and fixed services, as long as the proposed services conform to interference criteria and CMRS services are not provided. Such flexibility is in accord with provisions in the recently adopted Balanced Budget Act of 1997, which provides the FCC with authority:

> To allocate electromagnetic spectrum so as to provide flexibility of use, if-
> (1) such use is consistent with international agreements to which the United States is a party; and
> (2) the Commission finds, after notice and an opportunity for public comment, that--
> (A) such an allocation would be in the public interest;
> (B) such use would not deter investment in communications services and systems, or technology development; and
> (C) such use would not result in harmful interference among users.[40]

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[40] P.L. 105-33, Sec. 3005.

As long as flexible use does not deter investment in the PMRS band, LMCC believes that flexibility in the licensing of PMRS systems would satisfy the statutory criteria and urges the FCC to address this issue in the *Notice of Proposed Rule Making* on this matter.

D. PMRS Spectrum Should be Managed to Minimize the Need for FCC Resources

96. New PMRS spectrum allocations present opportunities for innovative spectrum management mechanisms that can minimize the need to devote scarce Commission resources for these allocations. One such mechanism is the use of the Commission's frequency advisory committees, which could be charged with assisting the FCC in the management of the PMRS spectrum.

97. Frequency advisory committees have a proven track record in promoting the efficient use of the spectrum. These committees have been extremely effective in the PMRS bands, both below and above 800 MHz, in preventing interference and in promoting efficient use of the spectrum. In fact, according to the FCC's 1994 Annual Report, coordinators are responsible for the successful deployment of almost 19 million PMRS land mobile transmitters.[41]

98. Frequency advisory committees can also assist the FCC in the fulfillment of its statutory obligation to avoid mutually exclusive applications. Section 309j(6)(E) of the Communications Act charges the FCC with:

> the obligation in the public interest to continue to use engineering solutions, negotiation, threshold qualifications, service regulations, and other means in order to avoid mutual exclusivity in application and licensing proceedings.

Frequency advisory committees can work with applicants to resolve mutually exclusive

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[41] 1994 Federal Communications Commission Annual Report, p. 121.

applications by recommending engineering and technical solutions. Coordinators can also encourage the parties to negotiate voluntary solutions that permit all parties to have access to the spectrum. Given the myriad of PMRS users that need access to spectrum, coordinators can ensure that this vital resource is used efficiently to benefit as many entities as possible.

99. It is particularly important to avoid mutual exclusivity in the new PMRS band(s) since the band(s) would include some services that are exempt from auctions.[42] The co-mingling of auctionable and non-auctionable services in a single band raises a particularly troublesome question regarding the resolution of mutually exclusive applications. The FCC is under statutory mandate to resolve all mutually exclusive applications through competitive bidding; however, it is not permitted to require certain services to compete at auction for licenses. To avoid this morass, the Commission should rely on the ability of its frequency advisory committees to coordinate such applications in such a way so as to avoid mutual exclusivity. Not only is this sound spectrum policy, but, as discussed *supra*, it would fulfill the Commission's statutory obligation under section 309(j)(6)(E) of the Act to avoid mutual exclusivity.

100. Finally, frequency advisory committees can assist the FCC in accelerating the licensing process, a goal that is paramount to the FCC and to the PMRS community. As noted throughout, there is a demonstrated and urgent need for new spectrum to meet PMRS needs. Frequency advisory committees can assist the FCC in speeding up the licensing process by

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[42] The 97 Budget Act exempted "public safety radio services" from auctions. Sec. 3002 (a)(2). The accompanying Congressional report explained that this term includes both traditional public safety entities and others, including utilities, pipelines, railroads, metropolitan transit authorities, PMRS ambulances and auto-emergency organizations, that are used to protect the safety of life, health and property." 143 Congressional Record H6172 (July 29, 1997)

ensuring that the necessary paperwork is properly prepared; all engineering and operational information is provided to avoid interference among licensees; and all FCC regulations are satisfied.

E. Promote PMRS Use of PMRS Bands

101. The LMCC urges the FCC to avoid licensing rules that limit the availability of spectrum for PMRS systems. Therefore, LMCC urges the FCC not to allocate the same bands of spectrum to both CMRS and PMRS systems. The co-existence of PMRS and CMRS systems in a single allocation will inevitably lead to one result -- the eventual elimination of PMRS users on those bands (*See* Sec. III, D, *supra*).

102. The FCC should also avoid unnecessary restrictions on PMRS users operating in the new PMRS bands. As PMRS services, licensees in these bands should not be subject to 911 obligations or universal service requirements, nor should they be subject to common carrier requirements under Title II.[43]

VII. Conclusion

103. The LMCC is aware that not all of the requests included in this petition are within the immediate authority of the FCC. For the FCC to be able to allocate spectrum that is currently reserved for Federal Government use for PMRS, that spectrum must first be designated for non-government use by either Congress or NTIA. However, the LMCC will be presenting the issues raised in this petition to both Congress and NTIA to expedite the transfer of this spectrum to the FCC. When such transfer is made, the FCC should be

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[43] Should eligibility for new allocations be modified to the "non-covered carrier characterization described in note 11, *supra*, this exemption would remain constant.

prepared to act in accordance with the recommendations in this petition. Further, the FCC should begin discussions with NTIA and appropriate Congressional offices to expedite the transfer of this spectrum.

104. In the meantime, the LMCC urges the FCC to consider the broader issues raised in this petition. Specifically, the FCC should immediately reconsider its recent policy determinations with regard to the needs of the PMRS community. Specifically, wide area geographic licensing and a system of competitive bidding should never be employed on spectrum allocated for PMRS use. The Commission should also recognize that the commingling of CMRS and PMRS systems in a single allocation can only have one result: the eventual dislocation of the incumbent PMRS licensees.

105. As has been amply demonstrated, PMRS systems play a vital role in our nation's businesses and infrastructure. These internal systems contribute to the efficiency of the American economy; ensure the competitiveness of our businesses in the global marketplace; and are used on a daily basis to protect the safety of life, health, and property.

106. Accordingly, the LMCC respectfully requests that the Commission fulfill its obligation to promote the public interest, convenience, and necessity, by promoting policies that will ensure the long-term survival and success of the PMRS industry.

Respectfully submitted,

Land Mobile Communications Council
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Larry A. Miller, President

Date: April 22, 1998

APPENDIX A

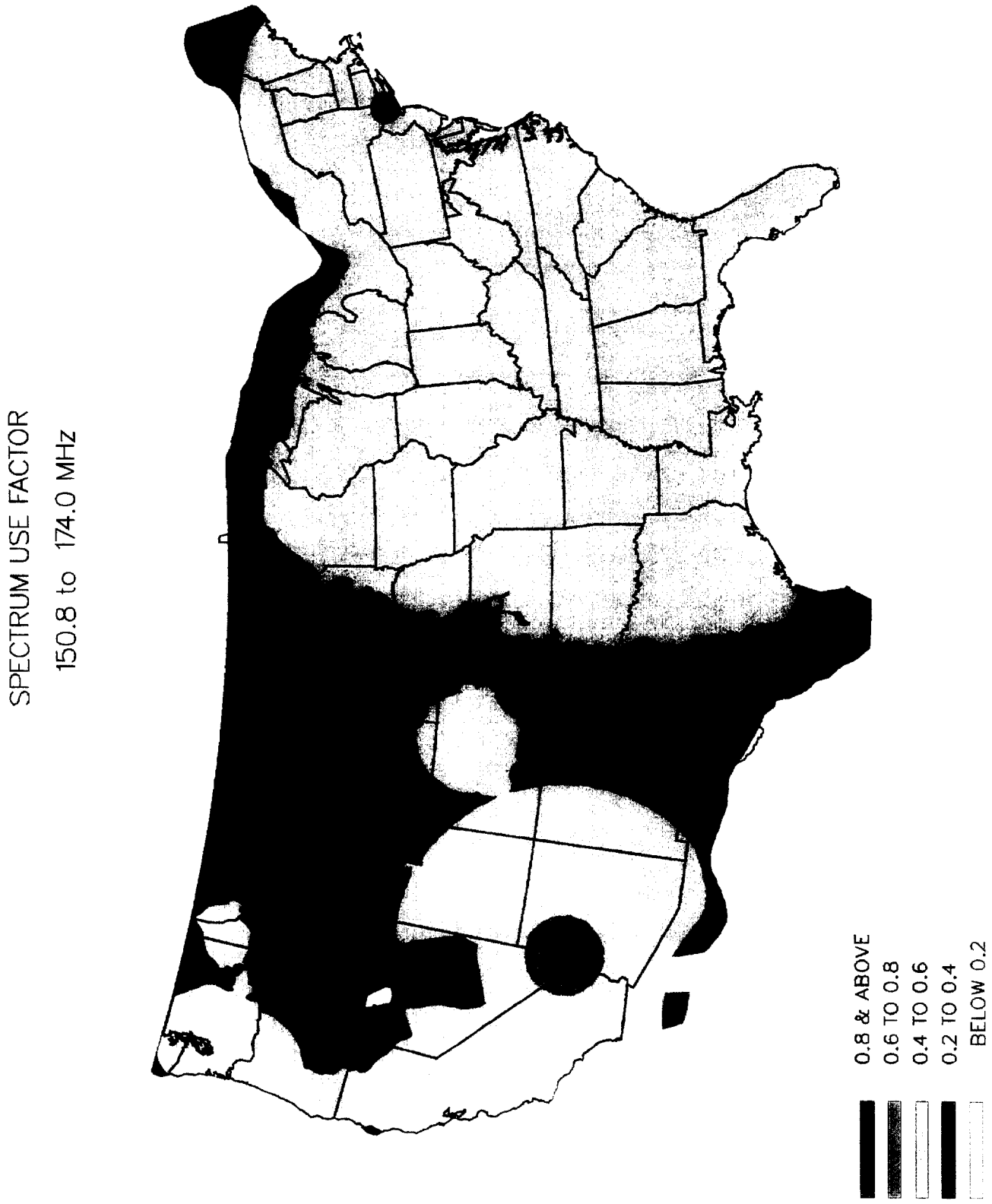

Figure 2-2. Spectrum Use Factor for the 150.8 - 174.0 MHz band.